

October 24, 2016

Tom Moe
USS Corporation
P.O. Box 417
8771 Park Ridge Dr
Mountain Iron, MN 55768

RE: Project: USS MinnTac NPDES-Line 3
Pace Project No.: 1276888

Dear Tom Moe:

Enclosed are the analytical results for sample(s) received by the laboratory on October 12, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Melisa M Woods
melisa.woods@pacelabs.com
Project Manager

Enclosures

cc: Cory Hertling
Terri Sabetti, NTS



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: USS MinnTac NPDES-Line 3

Pace Project No.: 1276888

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792

Alaska Certification UST-107

Alaska Certification UST-107

Alaska Certification #MN01084

Arizona Department of Health Certification #AZ0785

Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203

Wisconsin DNR Certification # : 998027470

WA Department of Ecology Lab ID# C1007

Nevada DNR #MN010842015-1

Oklahoma Department of Environmental Quality

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SAMPLE SUMMARY

Project: USS MinnTac NPDES-Line 3

Pace Project No.: 1276888

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1276888001	WS-002 Scrubber Make-Up	Water	10/12/16 08:55	10/12/16 16:50
1276888002	WS-003 Thickner Overflow	Water	10/12/16 08:50	10/12/16 16:50

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SAMPLE ANALYTE COUNT

Project: USS MinnTac NPDES-Line 3

Pace Project No.: 1276888

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1276888001	WS-002 Scrubber Make-Up	EPA 200.7	MAR	3	PASI-V
		EPA 300.0	DMB	1	PASI-V
1276888002	WS-003 Thickner Overflow	EPA 200.7	MAR	3	PASI-V
		EPA 300.0	DMB	1	PASI-V

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ANALYTICAL RESULTS

Project: USS MinnTac NPDES-Line 3

Pace Project No.: 1276888

Sample: WS-002 Scrubber Make-Up Lab ID: 1276888001 Collected: 10/12/16 08:55 Received: 10/12/16 16:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP, Lab Filtered Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Calcium, Dissolved	105	mg/L	5.0	0.29	1	10/13/16 20:47	10/14/16 12:31	7440-70-2	
Magnesium, Dissolved	206	mg/L	5.0	0.67	1	10/13/16 20:47	10/14/16 12:31	7439-95-4	
Total Hardness, Dissolved	1110	mg/L	100	50.0	1	10/13/16 20:47	10/14/16 12:31		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	764	mg/L	20.0	10.0	10		10/21/16 21:11	14808-79-8	

Sample: WS-003 Thickner Overflow Lab ID: 1276888002 Collected: 10/12/16 08:50 Received: 10/12/16 16:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP, Lab Filtered Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Calcium, Dissolved	867	mg/L	5.0	0.29	1	10/13/16 20:47	10/14/16 12:40	7440-70-2	
Magnesium, Dissolved	85.0	mg/L	5.0	0.67	1	10/13/16 20:47	10/14/16 12:40	7439-95-4	
Total Hardness, Dissolved	2520	mg/L	100	50.0	1	10/13/16 20:47	10/14/16 12:40		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	2000	mg/L	40.0	20.0	20		10/21/16 22:17	14808-79-8	

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QUALITY CONTROL DATA

Project: USS MinnTac NPDES-Line 3

Pace Project No.: 1276888

QC Batch: 97229

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 MET Dissolved

Associated Lab Samples: 1276888001, 1276888002

METHOD BLANK: 384141

Matrix: Water

Associated Lab Samples: 1276888001, 1276888002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium, Dissolved	mg/L	ND	0.50	0.029	10/14/16 11:51	
Magnesium, Dissolved	mg/L	ND	0.50	0.067	10/14/16 11:51	

LABORATORY CONTROL SAMPLE: 384142

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	mg/L	50	50.6	101	85-115	
Magnesium, Dissolved	mg/L	50	50.2	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 384143 384144

Parameter	Units	1276888001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	mg/L	105	500	500	589	590	97	97	70-130	0	20	
Magnesium, Dissolved	mg/L	206	500	500	690	693	97	97	70-130	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 384145 384146

Parameter	Units	1276888002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	mg/L	867	500	500	1360	1390	98	105	70-130	3	20	
Magnesium, Dissolved	mg/L	85.0	500	500	563	586	96	100	70-130	4	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: USS MinnTac NPDES-Line 3

Pace Project No.: 1276888

QC Batch: 98024

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 1276888001, 1276888002

METHOD BLANK: 388690

Matrix: Water

Associated Lab Samples: 1276888001, 1276888002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	2.0	1.0	10/21/16 15:42	

LABORATORY CONTROL SAMPLE: 388691

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	50	51.0	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 388692 388693

Parameter	Units	1276660001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L		50	50	172	172	100	100	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 388694 388695

Parameter	Units	1276888001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	764	500	500	1270	1270	101	101	90-110	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: USS MinnTac NPDES-Line 3

Pace Project No.: 1276888

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-V Pace Analytical Services - Virginia

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: USS MinnTac NPDES-Line 3


Pace Project No.: 1276888

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1276888001	WS-002 Scrubber Make-Up	EPA 200.7	97229	EPA 200.7	97281
1276888002	WS-003 Thickner Overflow	EPA 200.7	97229	EPA 200.7	97281
1276888001	WS-002 Scrubber Make-Up	EPA 300.0	98024		
1276888002	WS-003 Thickner Overflow	EPA 300.0	98024		

REPORT OF LABORATORY ANALYSIS

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Page 10 of 11

	Document Name:	Document Revised: 23Feb2015
	Sample Condition Upon Receipt Form	Page 1 of 1
	Document No.: F-VM-C-001-Rev.09	Issuing Authority: Pace Virginia, Minnesota Quality Office

Sample Condition
Upon Receipt

Client Name:

Project #

WO#: 1276888



Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client
☐ Commercial ☐ Pace ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No Seals Intact? ☐ Yes ☒ No Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other: Temp Blank? ☒ Yes ☐ No

Thermometer Used: ☒ 140792808 Type of Ice: ☒ Wet ☐ Blue ☐ None ☒ Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.7 Cooler Temp Corrected °C: 0.0 Biological Tissue Frozen? ☐ Yes ☐ No ☒ NA
 Temp should be above freezing to 6°C Correction Factor: 0.3 Date and Initials of Person Examining Contents: CA 10-13-16

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation will be checked and documented in the pH logbook.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review:

Date: 10/13/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)